

# Some Thoughts on Bunker Drainage

Will Bowden uses his experiences travelling to some top clubs in America to share some useful advice on bunker drainage.

I would like to introduce myself as a young greenkeeper who like many others in my profession is continually keen to learn more and broaden their practical and theoretical experience and knowledge.

Although still in the early years of my career I believe that whatever your level of experience good ideas must be shared in order that as broad a spectrum of people as possible may benefit.

In recent years I have been fortunate to be involved in numerous experiences overseas as well as having worked on some fantastic golf courses under some very progressive and innovative Course Managers.

I do not claim to be an expert in any aspect of my profession, however I do believe that sharing ideas and experiences is a vital part of our development in order that we can understand more and appreciate the intricacies of greenkeeping. The aim of my articles is hopefully to strike a chord among other like minded enthusiastic greenkeepers young and old.

In May 2000 I was selected to take part in the inaugural Grand Tour Scholarship Scheme. Organised by Bettina Shrickel and at the time sponsored by Rainbird International I was offered one month to travel the entire East Coast of America stopping off at some of the world's most famous venues along the way!

As you can imagine it was an unbelievable learning experience and above all a great opportunity to learn a wider range of new philosophies and solutions to problems that in many cases were echoed back home in the UK. One such method was an innovative idea regarding bunker drainage and, primarily, the potential to reduce the severity of bunker washouts.

Although a problem of alarming proportions in the US where at certain times of the year flash floods reek havoc, I recognised its relevance to the British Isles and our ever-changing climate.

The method was being employed at a golf club called Winged Foot in the New York State. This is one of America's finest and most established golf courses regularly staging major tournaments and most notably host to several US Opens.

The entire course was under major renovation during our visit and although a club of extensive resources and facilities even these were being stretched to the limit.

As with our UK climate the frequency of flash flooding in New York State was increasing and with the combination of a comprehensive course overhaul and the ever more unpredictable weather, several maintenance issues were brought to the fore.

Most significant was the constant need to repair bunker washouts (at worst approximately two to three times per week). This had become such a huge drain on both manpower and financial resources that it was having a detrimental effect on the presentation of other golf course areas. The following investigation was therefore made to establish a successful method of damage limitation.

Picture 1 shows a typical bunker at Winged Foot and highlights the basic principle of perimeter draining that the club was embarking upon.

## THE PRINCIPLE

The idea of the perimeter drain is to enhance the already existing drainage infrastructure within a bunker, by plugging in a new perimeter drain and installing a two-inch perforated pipe in a trench dug to approximately eight inches at a four to six inch distance inside the top edge of the bunker. This drain line is then back filled with shingle to just below the lip and capped over with fresh sand.

Picture 2 (over the page) illustrates the trench has been dug in to the bunker face and pipe laid with a back fill of shingle over it. This drain was plugged in to the main drain at the base of the bunker by a single lateral.

This method was proving to be extremely successful, it relies on catching the majority of the water being channelled down the bunker face and draining it away before it has a chance to gain momentum and in turn wash



▲ Picture 1

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▲ Picture 2

the sand down the steep face. Although undoubtedly a time consuming task in the short term it has proved itself to be a successful solution to a long-term problem.

A year later I was working as an Assistant at The London Golf Club and with a huge number of bunkers on both their Jack Nicklaus golf courses the damage caused by frequent washouts was a constant drain upon resources.

After describing this method to the Course Manager, Peter Todd, and his team we decided to test the effectiveness of this theory in a British climate. We began initially by selecting the worst two or three bunkers on the International Course.

The results were a resounding success, through the installation of perimeter drains complimenting the already existing infrastructure we were able systematically to pick off the worst affected bunkers and in turn embarked upon an ongoing drainage plan to encompass all greenside and problematic fairway bunkers over the coming years.

One of our fears was that these drains would rapidly become contaminated with sand and silt migration. This has not occurred as the first bunker we renovated over two years ago is still performing perfectly.

Over a period of time we began to make modifications to this theory and as the following picture shows we started to place perimeter drains outside the top edge.

The basic principle behind this echoes that of the internal drain. At The London Golf Club it is a characteristic of many holes to shape the long

grasses around the outer edge of some fairway and greenside bunkers. Not only did this create an attractive visual effect but it also allowed us to place drains on the bank of the hazard which would be effectively be hidden as the native grasses grew in the Spring.

This outer placement of the drain resulted in equal success and greatly reduced the likelihood of any silt/sand contamination. It is ideal in the sense that it actually catches the channelled water before it even has an opportunity to reach the bunker.

It has become clear that both methods are equally successful and having recently spoken to Peter at The London Golf Club he is continuing to employ this method of bunker drainage. Far from being a practice that is exclusive to more 'top end' establishments this is a simple method of bunker drainage that works and I believe can be utilised by all golf clubs large and small.

The key is to prioritise which are your problem bunkers and deal with those first, then systematically and over a number of years attempt to improve the overall drainage of all the bunkers on your golf course. It can be one a year, it doesn't matter!

Although by no means revolutionary I hope this suggestion will help those who have historically suffered from the constant nightmare of bunker washouts. I am sure many of you are employing similar methods already and, if so, rest assured your work is of great long term benefit and well worth the effort you and your team are putting in.



▲ Picture 3



▲ AFT Trenchers